5th International Symposium on
Applied Engineering and Sciences (SAES2017)
14th–15th November 2017 | **MALAYSIA**
UNIVERSITI PUTRA MALAYSIA, SERDANG, SELANGOR

Presentation code:

E29

Statistical analysis of wind speed data at mersing, malaysia using weibull distribution parameters

Athraa Ali Kadhem[1*], Noor Izzri Abdul Wahab[1], Ishak Aris[1], Jasronita Jasni[1] and Ahmed N. Abdalla[2]

[1] Center for Advanced Power and Energy Research, Faculty of Engineering, Department of Electrical and Electronic Engineering, University Putra Malaysia, Selangor 43400, Malaysia.
[2] Faculty of Electronic and Information Engineering, Huaiyin Institute of Technology, Huai'an, Jiangsu, China.

*Corresponding author's e-mail: athraaonoz2007@yahoo.com,

Abstract. Analysis wind data characteristics and accurate wind power potential assessment at a specified location is an important criterion prior to deciding on installing the wind energy and evaluating plans to relate these projects with the electrical power grid. In this paper, statistical methods are used to analyze the wind speed data at a selected site in Malaysia namely, Mersing. The present analysis is carried out for two hub heights of 43.6 m and 100 m using Weibull parameters based on hourly wind speed data of the selected site. From the analysis, it has been found that the annual most probable wind speeds are 2.58 m/s and 3.91 m/s and the wind speed for carried a maximum energy are 4.49 m/s and 6.80 m/s for regarded heights respectively. While the annual mean energy density varies from 213.48 kWh/m^2 and 741.05 kWh/m^2 at height of 43.6 m and 100 m respectively. The wind turbine model is also suggested based on the annual energy output and capacity factor.

Keywords: Wind data, Weibull parameters, Wind power density, Capacity factor, Malaysia.